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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,202

04/14/2005

Steffen Hasenzahl

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SMITH, GAMBRELL & RUSSELL

SUITE 3100, PROMENADE II

1230 PEACHTREE STREET, N.E.

ATLANTA, GA 30309-3592

EXAMINER

GODENSCHWAGER, PETER T

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

03/11/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,202

Applicant(s)

HASENZAHN ET AL.

Examiner

PETER F. GODENSCHWAGER

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 16, 2008 has been entered.

Applicant's reply filed December 16, 2008 has been fully considered. No claims are amended, and claims 1, 2, 4, 6, and 8-14 are pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. (US Pat. No. 5,959,005) in view of Menon et al. (US Pat. No. 6,159,540).

Hartmann et al. teaches a powder (pulverulent material) that may contain a silanized silica (surface modified metallic oxide) where the silica is pyrogenically prepared (1:14-15, 40-45, and 55-56). Hartman et al. further teaches a silanized silica with the following properties, a specific surface area according to BET of 80-400 m²/g, a primary (average) particle size of 7-40 nm, a pH value of 3-10, a carbon content of 0.1-15%, and a DBP number of <200% (1:15-25).

Hartmann et al. does not teach the composition where the surface modifying groups are dimethylsilyl or monomethylsilyl. However, Menon et al. teaches the use of dimethyldichlorosilane (DMDCS) and methyltrichlorosilane (MTCS) for functionalizing silica (3:25-35 and 3:54-4:7) which would give dimethylsilane and monomethylsilane functional groups on the silica. Hartmann et al. and Menon et al. are combinable because they are concerned with the same field of endeavor, namely silanized silica. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the DMDCS and MTCS as taught by Menon et al. with the composition taught by Hartmann et al. and would have been motivated to do so because Menon et al. teaches that the polyfunctional silanes are economical and that the using recovered MTCS from waste streams is environmentally beneficial (4:1-7).

Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. (US Pat. No. 5,959,005) in view of Menon et al. (US Pat. No. 6,159,540).

Hartmann et al. teaches a powder (pulverulent material) that may contain a silanized silica (surface modified metallic oxide) where the silica is pyrogenically prepared. Hartman et al. further teaches a silanized silica with the following properties, a specific surface area according to BET of 80-400 m²/g, a primary (average) particle size of 7-40 nm, a pH value of 3-10, a carbon content of 0.1-15%, and a DBP number of <200% (1:15-25). Hartmann et al. additionally teaches using (combining) the silanized silica with a fire-extinguishing agent (1:14-15, 40-45, and 55-56).

Hartmann et al. does not teach the composition where the surface modifying groups are dimethylsilyl or monomethylsilyl. However, Menon et al. teaches the use of

dimethyldichlorosilane (DMDCS) and methyltrichlorosilane (MTCS) for functionalizing silica (3:25-35 and 3:54-4:7) which would give dimethylsilane and monomethylsilane functional groups on the silica. Hartmann et al. and Menon et al. are combinable because they are concerned with the same field of endeavor, namely silanized silica. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the DMDCS and MTCS as taught by Menon et al. with the composition taught by Hartmann et al. and would have been motivated to do so because Menon et al. teaches that the polyfunctional silanes are economical and that the using recovered MTCS from waste streams is environmentally beneficial (4:1-7).

Claims 4, 6, 8, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. (US Pat. No. 5,959,005) in view of Menon et al. (US Pat. No. 6,159,540).

Regarding Claims 4, 6, 8, and 9: Hartmann et al. teaches a powder (pulverulent material) that may contain a silanized silica (surface modified metallic oxide) where the silica is pyrogenically prepared (1:14-15, 40-45, and 55-56). Hartman et al. further teach the silanized silica with the following properties, a specific surface area according to BET of 80-400 m²/g, a primary (average) particle size of 7-40 nm, a pH value of 3-10, a carbon content of 0.1-15%, and a DBP number of <200% (1:15-25).

Hartmann et al. does not teach the composition where the surface modifying groups are dimethylsilyl or monomethylsilyl. However, Menon et al. teaches the use of dimethyldichlorosilane (DMDCS) and methyltrichlorosilane (MTCS) for functionalizing silica (3:25-35 and 3:54-4:7) which would give dimethylsilane and monomethylsilane functional groups on the silica. Hartmann et al. and Menon et al. are combinable because they are

concerned with the same field of endeavor, namely silanized silica. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the DMDCS and MTCS as taught by Menon et al. with the composition taught by Hartmann et al. and would have been motivated to do so because Menon et al. teaches that the polyfunctional silanes are economical and that the using recovered MTCS from waste streams is environmentally beneficial (4:1-7).

Regarding Claims 11 and 12: Hartmann et al. further teaches where the powder (pulverulent material) is a fire-extinguishing powder (1:55-56).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. (US Pat. No. 5,959,005) in view of Menon et al. (US Pat. No. 6,159,540) as applied to claim 4 above, and further in view of Koehlert et al. (US Pat. No. 5,928,723).

Hartmann et al. in view of Menon et al. render the composition of claim 4 obvious as set forth above.

Hartmann et al. does not the teach the composition where the pulverulent material is selected from the group of instant claim 10. However, Koehlert et al. teaches that surface modified metal oxides and organo-metal oxides may be combined with powders such as herbicides and insecticides (agricultural chemicals) (1:47-61). Hartmann et al. and Koehlert et al. are combinable because they are concerned with the same field of endeavor, namely surface modified metal oxides. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the herbicide and insecticide powders taught by Koehlert et al. with the modified silicas of Hartmann et al. and would be motivated to do so because Koehlert et al.

teaches that surface modified metal oxides and organo-metal oxides act as free flow agents for the powders (1:55-60).

Response to Arguments

Applicant's arguments filed December 16, 2008 have been fully considered but they are not persuasive.

Applicant argues that the data in Table 17 shows unexpectedly better results for examples 9, 2, and 7 compared to AEROSIL R2800. It is noted that the sieve residues for examples 9, 2, and 7 of the invention are lower after 5 minutes of mixing compared to AEROSIL R2800 (25.5%, 11.0%, and 11.0% compared to 29.0%). However, as stated in the Advisory Action mailed September 23, 2008, the scope of the claim is larger than the selected examples, as the examples include further variables such as milling after structure modification (Table 11). While the sieve residues of Example 9 vs. AEROSIL R8200 are smaller after 5 minutes of mixing, the improvement cannot be deemed to be unexpectedly better (25.5% vs. 29%). When compared to the differences of a much greater magnitude seen upon a longer mixing time (i.e. 60 min) where the silica of AEROSIL R2800 shows a lower silica residue (2.5%) after 60 minutes of mixing compared to examples 9, 2, and 7 (13.0%, 3.0%, and 5.0% respectively). It is furthermore not clear how it is an advantage to mix the composition of Example 9 for anytime at all as the sieve residue actually increases after 5 minutes of mixing (Table 17). In addition, while the sieve residue of Example 9 compared to AEROSIL R8200 is slightly improved after 5 minutes of mixing, AEROSIL R8200 shows a better flow rating (2 vs. 3) and a better cone height (1.8 vs.

1.95). Therefore, it is not clear that Example 9 shows, overall, unexpectedly better flowability even after only 5 minutes of mixing.

Applicant's argue further that improvements in fluidisability and resistance to caking (Table 13, Pg. 31 and Table 14, Pg. 32 respectively) are not foreshadowed by Hartmann. However, there is no comparison of the examples of the present invention with the silicas of Hartmann (AEROSIL R2800) in Tables 13 or 14. The data in Tables 13 and 14 show comparisons only to non-structurally modified silica and silica that has varying degrees of structural modification which is not relevant to the combination of Hartmann and Menon.

Applicant argues that one of ordinary skill in the art would not use the silanes of Menon as Menon teaches that they require purification. However, as stated in the previous Advisory Action, Menon et al. teaches the advantages of using MTCS or DMDCS as opposed to single site reactive silanes, such as a lower cost, and the availability of two or three reactive sites as opposed to single site reactive silicas (3:37-53) (i.e. HMDS of Hartmann et al.) which would lead to stronger, more stable, capping of silicas. In addition, the ability of using MTCS from waste streams for making silicone (waste streams that would not contain HMDS) (4:1-8) would lead to an economic advantage as the MTCS would not have to be purchased separately, and would also lead to a more environmentally beneficial process (4:1-8).

In response to applicant's argument that the prior art references make no mention of advantages in improving mixing time or flowability, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Regarding the combination of Hartmann et al. and Koehlert et al., the broad teaching of Koehlert et al. that surface modified silicas are useful as free flow agents in herbicides and insecticides (agricultural chemicals) and fire extinguishing powders (1:47-61), and the fact that Hartmann et al. is concerned with surface modified silicas useful as free flow agents, especially in fire extinguishing powders (1:40-60) would suggest to one of ordinary skill in the art that the silicas of Hartmann et al. in view of Menon et al. would also be useful in herbicides and insecticides (agricultural chemicals). Applicant's argue that the previous Advisory Action suggests the cited references contain a broad teaching as to the "suitability of silane surface treated silicas for any and all purposes". However, the previous Advisory Action only cites Koelert et al. for its broad teaching that surface modified silicas are useful as free flow agents in herbicides and insecticides (see also above) not any and all purposes.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796
March 5, 2009